

What is claimed is:

1. An implantable medical device with an external recharging coil, comprising:
a housing having an interior cavity, a proximal face, and an electrical feedthrough;
electronics carried in the housing interior cavity, the electronics configured to perform a medical therapy;
a rechargeable power source carried in the housing interior cavity and electrically coupled to the electronics; and,
a recharging coil centrally located and substantially carried on the housing proximal face and electrically coupled through the housing electrical feedthrough to the electronics and rechargeable power source.
2. The implantable medical device as in claim 1 wherein the electrical feedthrough includes a recharge feedthrough located on the housing proximal face.
3. The implantable medical device as in claim 1 wherein the recharging coil is mechanically attached to the housing.
5. The implantable medical device as in claim 1, further comprising at least one housing attachment detail.
6. The implantable medical device as in claim 1, further comprising a coil cover that carries the recharging coil and attaches to the housing.
7. The implantable medical device as in claim 6, further comprising at least one cover alignment detail.
8. The implantable medical device as in claim 6, further comprising at least one cover attachment detail.
9. The implantable medical device as in claim 6, further comprising a biocompatible polymer to create a hermetic seal between the coil cover and the housing.

10. The implantable medical device as in claim 6, further comprising a coil alignment carrier for carrying the coil, the coil alignment carrier positioned between the coil cover and the housing.
11. The implantable medical device as in claim 10 wherein the coil alignment carrier is hermetically sealed to the coil cover to form a coil assembly.
12. The implantable medical device with external recharging coil as in claim 1 wherein the recharging coil is attached to the housing by encapsulation with a polymer.
13. The implantable medical device as in claim 1 wherein the recharging coil is attached to the housing by overmolding with a polymer.
14. The implantable medical device as in claim 13, wherein the overmolding is accomplished in an in situ mold.
15. The implantable medical device as in claim 1 wherein the recharging coil is mechanically attached to the housing with a retention sleeve.
16. The implantable medical device as in claim 15 wherein the retention sleeve is hermetically sealed to the housing.
17. The implantable medical device as in claim 1 wherein the rechargeable power source is an electrical storage device.
18. The implantable medical device as in claim 1 wherein the rechargeable power source is a chemical storage device.
19. The implantable medical device as in claim 1 further comprising a telemetry coil carried in the housing interior cavity.
20. The implantable medical device as in claim 1 wherein the recharging coil is configured for multiplexing as a telemetry coil for communications between a programmer and the electronics.

21. The implantable medical device as in claim 1 wherein the medical device is selected from the group consisting of: a neuro stimulator, a pacemaker, a defibrillator, drug delivery pump, and a diagnostic recorder.
22. An implantable medical device with an external recharging coil, comprising:
 - a housing having an interior cavity, a proximal face, and an electrical feedthrough;
 - electronics carried in the housing interior cavity, the electronics configured to perform a medical therapy;
 - a rechargeable power source carried in the housing interior cavity and electrically coupled to the electronics; and,
 - means for recharging carried on the housing proximal face and operationally coupled to recharge the rechargeable power source; and
 - means for attaching the means for recharging coil to a position centrally located and substantially carried on the housing proximal face.
23. An implantable medical device with an external recharging coil, comprising:
 - a housing having an interior cavity, a proximal face, and an electrical feedthrough, the housing having at least one housing alignment detail;
 - electronics carried in the housing interior cavity, the electronics configured to perform a medical therapy;
 - a rechargeable power source carried in the housing interior cavity and electrically coupled to the electronics; and,
 - a recharging coil carried on the housing proximal face and electrically coupled through the housing electrical feedthrough to the electronics and rechargeable power source.